	Application No.	Applicant(s)
Office Action Summary	10/082,326	URATANI ET AL.
	Examiner	**Art Unit**	
	Kristie D. Shingles	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>8/2/07</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/2/2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *15-28* is/are allowed.

6)☒ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendments
Claims 15-28 have been amended.
Claims 1-14 and 29 are cancelled.

Claims 15-28 are pending.

Response to Arguments

I.   Applicant's arguments (see Remarks pages 2-8 filed 8/2/2007) with respect to claims 15, 20 and 24 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

II.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

III.   **Claims 15 - 28** **are rejected under 35 U.S.C. 103(a) as being unpatentable over** *DeKoning* **(US 6,671,776) in view of** *Applicant Admitted Prior Art* **(US Publication 2002/0143903—hereafter referred to as—***AAPA***),** *Kedem* **(US 6,725,331) and** *Blumenau et al* **(US 2001/0020254).**

a. **Per claim 15**, *DeKoning* teaches a computer system comprising:

- a storage system having a plurality of logical units defined (*col.4 lines 20-33*);

- a first host computer adapter for a host computer that is configured to access a first group of first logical units of said plurality of logical units and that cannot access a second group of second logical units of said plurality of logical units (*Figures 1 and 4, col.3 lines 63-65, col.4 lines 12-34, col.5 line 60-col.6 line 11, col.6 lines 30-63—provision for a first host adapter to access a first group of logical units but unable to access another group of logical units*);

- a second host computer adapter that is configured to access said second group of second logical units, but that cannot access said first group of first logical units (*Figures 1 and 4, col.3 lines 63-65, col.4 lines 12-34, col.5 line 60-col.6 line 11, col.6 lines 30-63—provision for a second host adapter to access a second group of logical units but unable to access a first group of logical units*);

- an application included on said host for issuing the instruction for the coupling operations directed to one of said plurality of logical units, (*col.6 line 64-col.7 line 27, col.8 lines 30-53*);

- logical unit number including a connection port, a target ID, and a logical unit number (*col.3 lines 1-33, col.6 Table, col.8 lines 46-53—provision for extended LUNs and indicia for LUNs including port ID, target ID, host adapter number and LUN number*).

DeKoning teaches the use of controllers that control the coupling of the logical volumes (*col.4 lines 12-35, col.6 line 64-col.7 line 27*), however, *DeKoning* fails to explicitly teach wherein one of said logical units is a control-dedicated logical unit serving as a command device dedicated for coupling operation control for controlling coupling operations for the plurality of logical units and said application issuing the instruction for the coupling operations to said control-dedicated logical unit. However *AAPA* teaches the implementation of the management logical unit as a command device that is a shared logical unit used for executing coupling-commands from the host computer to logical units (*page 1 paragraphs 0002-0003*).

Although *DeKoning* and *AAPA* fail to explicitly teach: wherein said control-dedicated logical unit is used to carry out the coupling operations on one or more of said plurality of logical units in response to an instruction for the coupling operations received from one of said host computer adapters, wherein said first host computer adapter can command carrying out of the coupling operations on one of said first logical units in said first group of first logical units by writing control data to the control-dedicated logical unit and cannot command carrying out of the coupling operations on any of said second logical units in said second group of second logical units; wherein the second host computer adapter can command carrying out of the coupling operations on one of said second logical units in said second group of second logical units by writing control data to the control-dedicated logical unit, but cannot command carrying out of the coupling operations on any of said first logical units in said first group of first logical units—however, it is obvious from *DeKoning's* teaching of permitting hosts/host adapters to access only the LUNs assigned to them (*col.6 lines 30-63*) that a host adapter cannot command coupling to LUNs not in the group of LUNs assigned to the host adapter. Nonetheless, *Kedem* further teaches the coupling of one logical unit to another for mirroring logical volumes in response to instructions from the host (*Figure 1, col.3 line 33-col.4 line 40, col.6 lines 2-29*).

DeKoning, AAPA and Kedem fail to teach wherein the storage system adds extended logical unit numbers used in coupling to a response sent by the storage system as a reply to an inquiry command received from said host directed to a specific logical unit of said of said plurality of logical units, whereby the application obtains a list of logical unit numbers corresponding to logical units accessible by the host out of said plurality of logical units, wherein the application rejects a request of a coupling operation directed to logical units of said plurality

of logical units other than said logical units corresponding to the extended logical unit numbers on the list, thereby inhibiting coupling operations directed to any logical units of said plurality of logical units not accessible by the host. *DeKoning* teaches provision for LUN assignment and topology data, which associates LUNs with their respective hosts and host adapters (*col.6 line 64-col.7 line 27, col.8 lines 30-53*). However, *Blumenau et al* teaches the addition of logical units/volumes as a response to a user seeking to extend their logical volume access and storage (*page 17 paragraph 0147, page 18 paragraph 0152, page 19 paragraphs 0159-0161, page 20 paragraph 0165*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *DeKoning* with *AAPA*, *Kedem* and *Blumenau et al* for the purpose of implementing host commands to access, link, read/write to their associated LUNs while allowing only specific hosts and/or adapter to access the LUNs allocated to them; which provides prevents illegal access to information and insures the integrity of reading/writing data into respective LUNs; while allowing the coupling of LUNs together allows for the mirrored copies of the LUNs which prevents the loss of data in the LUNs in case one of the LUNs fail or become inoperable. Furthermore provision the extension of LUNs allows the user to receive increase their LUN access for storage expansion.

b.   **Claims 20, 24, 28 and 29** contain limitations that are substantially equivalent to claim 15 and are therefore rejected under the same basis.

c.   **Per claim 16,** *DeKoning* with *AAPA*, *Kedem* and *Blumenau et al* teach the computer system of claim 15, *Kedem* further teaches wherein said coupling operations are for copying logical units (*col.5 lines 1-47, col.6 lines 2-29, col.17 lines 51-64*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *DeKoning* with *AAPA* and *Kedem* for copying LUNs which prevents the loss of data in the LUNs in case of a LUN failure.

d.   **Claim 25** is substantially equivalent to claim 16 and is therefore rejected under the same basis.

e.   **Per claim 17,** *DeKoning* with *AAPA*, *Kedem* and *Blumenau et al* teach the computer system of claim 15, *DeKoning* further teach wherein the management logical unit is shared between a plurality of ports (*DeKoning: Figures 4 and 5* and *AAPA: page 1 paragraphs 0002-0003*).

f.   **Claim 26** is substantially equivalent to claim 17 and is therefore rejected under the same basis

g.   **Per claim 18,** *DeKoning* with *AAPA*, *Kedem* and *Blumenau et al* teach the computer system of claim 15, *DeKoning* further teaches wherein said host is capable of issuing a command for the coupling operation only via the application (*col.6 line 64-col.7 line 27, col.8 lines 30-53*).

h.   **Claim 27** is substantially equivalent to claim 18 and is therefore rejected under the same basis.

i.   **Per claim 19,** *DeKoning* with *AAPA*, *Kedem* and *Blumenau et al* teach the computer system of claim 18, *DeKoning* further teaches wherein the instruction for the coupling operation is written into the management logical unit as data, and the storage system processes the data written into the management logical unit for performing the coupling operation (*DeKoning*: *col.4 lines 12-35, col.6 line 64-col.7 line 27* and *AAPA: page 1 paragraph 0002*).

j.   **Claims 21-23** are substantially equivalent to claims 18 and 19 and are therefore rejected under the same basis.

Conclusion

IV.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Robbins et al (20020029319).

V.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.   Accordingly, **THIS ACTION IS MADE FINAL**.   See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.   In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

VI.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie D. Shingles whose telephone number is 571-272-3888. The examiner can normally be reached on Monday 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kristie D Shingles
Examiner
Art Unit 2141

kds